

ABSTRACT

A method for inspecting an object and detecting defects is taught (BGA and Flip-Chip solder joints on a PCB particularly). The method comprises injecting a heat pulse by light beam at a selected point on the object; capturing a sequence of consecutive thermal images of the object to record heat diffusion over time resulting from the heat pulse; comparing the heat diffusion over time at the point on said object to a reference; and determining whether the object comprises any defects. Also taught is an apparatus comprising a mounting for mounting the object; a pulsed laser source having a beam able to be positioned for providing a heat pulse at a precise location on the object; a thermal camera for capturing thermal images of the object; a frame grabber for capturing a sequence of image signals from the thermal camera; a memory unit for storing data representative of heat diffusion over time resulting from the heat pulse obtained from the sequence of image signals; and an analyzing unit for comparing the heat diffusion data to a reference data set, said reference comprising upper and lower limits of acceptable thermal heat diffusions of a specific area on the object.